UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,055	09/13/2003	Lifeng Wang	MCS-041-03	7058

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EXAMINER
CHUNG, DANIEL J

ART UNIT	PAPER NUMBER
2677	

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/661,055	WANG ET AL.
	Examiner	Art Unit	
	Daniel J. Chung	2672	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ .

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

Claims 1-37 are presented for examination. This office action is in response to the amendment filed on 5-11-2005.

Claim Objections

Claim 37 is objected to because of the following informalities: Dependent claim 37 is depend upon claim 37 itself. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Fossum. (6,606,097)

Regarding claim 1, Fossum discloses that the claimed feature of a computer implemented method for rendering graphics on an embedded device, comprising: inputting rendering data in a first format [i.e. "floating point input value"]; converting ["converter"] the rendering data from the first format [i.e. "floating point"] into a variable

length fixed pint format [i.e. "fixed point"]; processing the rendering data in the variable

length fixed point format ["fixed point operation"]; and rendering the processed rendering

data on the embedded device [100]. (See Abstract, Fig 4, Fig 5, col 5 line 45-46, col 5

line56-60, col 6 line 58-65, col 10 line 32+)

Regarding claim 2, Fossum discloses that using a normalized homogenous

coordinate [i.e. "normalized device coordinates"] system for vector operations on the

rendering data.(See col 5 line 1-10, col 5 line 23-33)

Regarding claim 3, Fossum discloses that the first format is at least one of

floating point format ["floating point"]. (See Abstract, col 5 line 45-46, col 5 line 56-60)

Regarding claims 4-6, Fossum discloses that creating a mathematical library [i.e.

'open graphics library' (OpenGL), which is commonly know to those of ordinary skill in

the art] for processing the rendering data in a variable length fixed-point format ["fixed

point"] by performing fixed point mathematical operations ["fixed point operation"] and

computing graphic functions. (See Fig 1, Fig 2, col 6 line 58-65)

Regarding claim 7, Fossum discloses that predicting a range of the processed

rendering data and truncating any data outside the range ["clipping"]. (See col 5 line 23-

33)

Regarding claim 8, Fossum discloses that the embedded device includes a mobile computing device using Direct3D for mobile devices. (See Fig 1, Fig 2, col 6 line 58-65, as Direct3D is well know as 'application program interfaces')

Regarding claim 9, claim 9 is similar in scope to the claim 1, and thus the rejection to claim 1 hereinabove is also applicable to claim 9.

Regarding claim 10, claim 10 is similar in scope to the claims 1 and 4, and thus the rejections to claims 1 and 4 hereinabove are also applicable to claim 10.

Regarding claim 11, claim 11 is similar in scope to the claims 5 and 6, and thus the rejections to claims 5 and 6 hereinabove are also applicable to claim 11.

Regarding claim 12, claim 12 is similar in scope to the claim 7, and thus the rejection to claim 7 hereinabove is also applicable to claim 12.

Regarding claim 13, claim 13 is similar in scope to the claim 7, and thus the rejection to claim 7 hereinabove is also applicable to claim 13.

Regarding claim 14, claim 14 is similar in scope to the claim 8, and thus the rejection to claim 8 hereinabove is also applicable to claim 14.

Regarding claim 15, claim 15 is similar in scope to the claims 1 and 8, and thus the rejections to claims 1 and 8 hereinabove are also applicable to claim 15.

Regarding claim 16, claim 16 is similar in scope to the claim 3, and thus the rejection to claim 3 hereinabove is also applicable to claim 16.

Regarding claim 17, claim 17 is similar in scope to the claim 10, and thus the rejection to claim 10 hereinabove is also applicable to claim 17.

Regarding claim 18, claim 18 is similar in scope to the claims 1-2 and 4-8, and thus the rejections to claims 1-2 and 4-8 hereinabove are also applicable to claim 18. In addition, Fossum further discloses that creating specialized buffers [i.e. "frame buffer"] on the computing device to store the NHCS fixed point data ["fixed point"].

Regarding claim 19, claim 19 is similar in scope to the claim 3, and thus the rejection to claim 3 hereinabove is also applicable to claim 19.

Regarding claim 20, claim 20 is similar in scope to the claim 3, and thus the rejection to claim 3 hereinabove is also applicable to claim 20.

Regarding claim 21, Fossum discloses that converting 3D coordinates of the

NHCS fixed-point data into 2D screen coordinates [i.e. "screen/window coordinate"].

(See col 5 line 23-33)

Regarding claim 22, claim 22 is similar in scope to the claims 1 and 8, and thus

the rejections to claims 1 and 8 hereinabove are also applicable to claim 22.

Regarding claim 23, claim 23 is similar in scope to the claims 1-3, and thus the

rejections to claims 1-3 hereinabove are also applicable to claim 23.

Regarding claim 24, Fossum discloses that determining a maximum fixed-point

buffer size of a destination buffer ["frame buffer"]. (See Fig 1-4)

Regarding claim 25, Fossum discloses that scaling the maximum value to the

maximum fixed-point buffer size. (See col 5 line 1-22)

Regarding claim 26, Fossum discloses that recording a shift digit value used in

the scaling. (See col 5 line 1-22)

Regarding claim 27, Fossum discloses that using the shift digit to normalize the

remaining values. (See col 5 line 1-33)

Regarding claims 28-31, claims 28-31 are similar in scope to the claims 1-4, and thus the rejections to claims 1-4 hereinabove are also applicable to claims 28-31.

Regarding claims 32-33 and 35, Fossum discloses that an index/vertex/command buffer stores indices/vertex information/wrapper. (See Fig 3)

Regarding claim 34, Examiner takes office notice that utilizing of a wrapper of command package is well know in an analogous art to provide increased flexibility in the format of the command.

Regarding claim 36, Fossum discloses that a transform and lighting module prepares the converted rendering data for a rasterizer. (See Fig 2-3)

Regarding claim 37, claim 37 is similar in scope to the claim 4, and thus the rejection to claim 4 hereinabove is also applicable to claim 37.

Response to Arguments/Amendments

Applicant's arguments with respect to claims 1-37 have been considered but are moot in view of the new ground(s) of rejection. Specifically, in response to the applicant's argument that the cited references do not discloses that converting rendering data from a first format into a variable length fixed point format with generated

rendering data is a normalized homogeneous coordinate system fixed point format (See Remarks p.8), the newly submitted reference (Fossum) clearly teaches that converting a floating point input value to a fixed point value, thereby performing a series of fixed point operations with utilizing normalized device coordinates in some of graphic functions. (See Abstract, Fig 4, Fig 5, col 5 line 45-46, col 5 line56-60, col 6 line 58-65, col 10 line 32+) See the rejection hereinabove.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Chung whose telephone number is (571) 272-7657. He can normally be reached Monday-Thursday and alternate Fridays from 7:30am- 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael, Razavi, can be reached at (571) 272-7664.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

571-273-8300 (Central fax)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

djc
July 19, 2005

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600